

**Membership Application
PIKES PEAK RADIO AMATEUR ASSOCIATION**

Name _____

Address _____

City _____ State _____ Zip _____

Call _____ License Class _____

Are You An ARRL Member? Yes No Telephone _____

Full Member \$12.00

Family Membership \$15.00

Additional Names _____ Calls _____

Associate Member \$8.00 (Outside Teller & El Paso Counties.)



Ø BEAT

SEPTEMBER 1984

COLORADO SPRINGS,
COLORADO

12 pages/ page 12 blank

Frank Drake KL7IPV
4964 Harvest Lane
Colorado Springs, CO 80917

FIRST CLASS MAIL

RONALD DEUTSCH
KC7QJ
6050 DEL PAZ CR.
COLD. SPRGS. CO 80918



Ø BEAT



P.P.R.A.A. DIRECTORS

PRESIDENT	Al Vrooman NØCMW 1341 Diana Ln. 80909	473-1660
V. PRESIDENT	Mike Stansberry KØTER 2630 E. Ulñnah 80909	636-1290
SECRETARY	Mark Richardson NØEPF 24 N. Union 80909	473-1799
TREASURER	Les Borst KCØNC 2542 E. Bijou 80909	634-3995
Board Member	Bill Martin KQØH 4380 Sedate Ln. 80917	596-7519
Board Member	Frank Drake KL7IPV 4964 Harvest Rd. 80917	597-2406
Board Member	Jake Jacobs NØCYR 104 Old Broadmoor Rd. 80906	634-2223
Board Member	Doc Cornell WØMCT 721 Lansing Dr. 80909	596-4216

ZERO BEAT is published monthly in the interest of the members of the Pikes Peak Radio Amateur Association Inc., Colorado Springs, Colorado. Permission is given to reprint articles or excerpts provided credit is given. Deadline for submission of articles is the 21st of the month. Classifieds accepted anytime.

The Pikes Peak Radio Amateur Association meets on the second Wednesday of each month at Giuseppe's Depot Restaurant at 10 S. Sierra Madre at 7:30 p.m. All amateurs and interested parties are invited to attend.

Editor: Frank Drake KL7IPV, 4964 Harvest Rd. Colorado Springs, CO 80917 597-2406

MINUTES OF THE August 13th BOARD MEETING

The board meeting was held at Mike's, KØTER, on Aug 13. Present at the meeting were: Mike, Frank, KL7IPV; Jake, NØCYR; Doc, WØMCT; Al, NØCMW; Bill, KQØH; Les, KCØNC; Mark, NØEPF. The meeting was called to order at 7:40 PM.

Discussion took place concerning Torp McMahan's proposal involving the PPRAA with the Senior Citizen's Center to be constructed in the next year. The club has been asked for input that will help in the construction to enable them to include a room for a club station and a meeting room. Al will get together with Torp and give the input as resulted from the discussion. At this time it is informal and will involve the club more in the future.

Nomination recommendations for new officers was discussed. More will be brought up at the regular meeting.

Bill, KGØH, wished to discuss hams and their involvement with helping the local police in reducing the amount of traffic violations that occur on the city streets. After the discussion, Bill made a motion that the hams make an effort to report obvious traffic violations that they see to the police and that if this motion passes, the motion be presented to the membership for vote. Motion was defeated by a vote of 5 to 3.

ARES was brought up by Jake. Jake requested that the club write a letter of support for the ARES. The letter to contain a club commitment to provide assistance to ARES in time of need (emergencies). Seconded by Les. The motion passed on a vote of 6 to 0 with 2 abstaining.

Les reported on the picnic. There were approximately 50 people in attendance. The total cost for the picnic was \$150.28. The Nat'l Guard had two mobil units with generators there for the members to look over. Thanks to Mark, WB9NFE.

Mike moved that the non-officer board members serve as greeters at the door at each club meeting on a rotating basis. Seconded by Jake. Passed unanimously.

Discussion concerning the By-laws followed with input to the committee for consideration during the committee's next meeting.

Being no further business, the board meeting adjourned at 10:40PM.

Respectfully submitted, Mark, NØEPF

RAMBLINGS

FROM AROUND THE WORLD OF AMATEUR RADIO

From the Anchorage A.R.C. comes this. It is a letter from Bill Orr, W6SAI.

SINGLE LETTER BEACONS

We have received a plea from Bill Orr, W6SAI, for some help in trying to solve a puzzle that has confounded hams in the states for over a decade. This is the matter of the Single Letter Beacons (SLB's). They show up in & out of the bands. No one knows where they are located, what their purpose is, or to whom the transmissions are intended. It is thought the K beacon is in Siberia. If so, it should be plenty loud in Alaska. Perhaps the U beacon is in Europe. No one has a "handle" on the CW beacons.

Bill would appreciate some monitoring done on any of the frequencies listed below. Time of day & signal reports are appreciated. If you have DF capability, that would be of help also. Bill reports that they hear the 3978 & 4006 beacons early in the morning and the 9043 beacon is strong until at least noon. The 18342 beacon is heard in the evening. K beacons are stronger than the U beacons. The CW beacons are rather weak.

Please let Bill know if you hear or can make some sense out of this puzzle. He will have something about these signals in a forthcoming issue of HAM RADIO magazine. Please send your reports to: William I. Orr W6SAI

48 Campbell Lane
Menlo Park, CA 94025

SINGLE LETTER BEACONS (SLB's)

- Type 1. The "K" Beacon. This RTTY beacon is a steady carrier, with the FSK letter "K" repeated about every 3 or 4 seconds. The shift is 1000 Hz. On occasion, the K sequence is broken and a series of 5-number code groups are transmitted. Observed frequencies are: 2844, 3978, 4006, 4522, 5181, 5920, 7906, 7956, 8021, 8158, 9043, 10570, 11155, 12150, 14478, 18086, 18342, 18349, 22310, & 28956.
- Type 2. The "U" Beacon. Also an FSK beacon, with characteristics as are listed above. The observed frquencies are: 4403, 4448, 4466, 6245, 7570, 8137, 8218, 8671, 9058, 10211, 10216, 11210, 12185, 12195, 12329, 13328, 15657, & 15700.
- Type 3. The CW Beacon. These beacons appear in groups of four (4) at a time, spaced about 1 kHz apart, each sending a different letter. Letters are changed quite frequently. Most commonly used letters are: K,F,O,X,D,S,L,C, and 2 cyrillic characters. Beacons are also grouped about these observed frequencies: 5307, 6802, 8646, 10645, 11293, 13636, & 17017.

(all frequencies are + or - 2 kHz.)

WELCOME NEW MEMBERS

STEVEN J. SPARENBERG - No call yet
1618 E. Pikes Peak Ave. C.S. 80909
Phone # 635-7731

R.A. SPARENBERG - K9ZCO
P.O.Box 226, Clifton, IL 60927
Phone # 815-694-2449

HN W. MEREDITH - WØPQI
1220 Escarpardo Way, C.S. 80917
Phone # 574-2167

ROBERT MORROW - WB6GTM
3650 Rocky Knoll Dr. C.S. 80918
Phone # 598-2751

COMPUTER CORNER

FROM THE DESK OF YE OLDE EDITOR

Well, I finally made up a masthead for this column. So it'll be much easier for you computer types to find. As promised, although a bit late, I'll list the boards in town this time.

PHONE #	BOARD NAME	COMP. TYPE
632-0669	COMPUTER FARM	ALL
632-3391	ELECTRONIC COTT.	ALL
578-9406	SMART NET	ALL (ROLE PLAYING GAMES)
475-0648	COMP. DYNAMICS	ALL - PRIMARILY KAYPRO
591-8673	CITADEL COMP.	ALL - PRIMARILY KAYPRO
392-7510	ACADEMY COMP.	ATARI, T.I., CPM
576-2499	PETULA	ALL
598-4662	RBBS	ALL
578-5405	MODEM TIMES	COMPUTER MAGAZINE-REQUIRES MEMBERSHIP

All the listed boards are open boards that are either privately owned or are sponsored by a business here in the springs. Some are geared more to one type of computer rather than another, but access and operation is open to all. You may be required to subscribe to one or two, but the SYSOP's do that only to have some control over the people who use the boards. The boards can be fun and also informative, but it only takes one "hacker" to screw it up for everyone.

I have had offers of programs listings for this issue from three different people, but as of this writing (I'm early) I haven't received them. I don't know what the program will be this time, so look for it and enjoy. I would like some feedback from those of you trying to use the listings so that I know whether or not my programs are running on other machines. For those of you who are not familiar with my machine, it is a Kaypro 4/84 with Dbl side/Dbl density drives and 64K of memory. It also has a built in modem and Centronics printer interface that is driving a Smith-Corona "TP-1" printer (types this newsletter every month). I use a Wordstar word processor to put the newsletter together. I also will start, this month, another column to keep you advised of what is happening in other areas. Look for " RAMBLINGS ", and I hope you find it informative. If you get newsletters from other clubs, let me look through them, there maybe things in them to interest other club members. 'Til next month, 73. KL7IPV

MEMBER ADDRESS CHANGES

Ken & Margaret Holloway KA0DST
3103 Oak Bend, Round Rock, TX 78664
(effective Oct. 1, 1984)

Leo E. Oyler, Jr. W0GOW
8700 Grover, El Paso, TX 79925
(effective in Sept, 1984)

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protection. Excellent shape. \$600 firm
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home at 597-2406

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TAB BOOKS

The regular meeting of the Pikes Peak Radio Amateur Association was called to order August 8, 1984 at 7:30 p.m. The meeting was at Giuseppe's Depot. There were 61 members and guests present.

After introductions, Malcolm, KE9S, presented a program concerning packet radio. The video tape he showed gave an excellent overview/update on just what packet radio is and what is needed to get involved. Many people are apparently finding this is an excellent means of communication. Thanks and appreciation are extended to Malcolm for the well put together presentation.

Regular business was conducted after the break. Committee updates were presented. Ron, KC7QJ, is our new volunteer for the RFI committee and will take over Leo's duties. Several items were presented from the Colorado Council of Amateur Radio Clubs (CCARC). They are wishing to issue a new call directory for Colorado. This is rather a large project and will need the individual help of all the member clubs. They also indicated a bid for the 1985 Rocky Mountain Convention will be presented to those that decide such things; and a bid for the 1988 National Convention will also be forthcoming.

In other business, Mike, KØTER, was looking for help on the Woodland Park Enduro which was moved forward a month to August 19. The club picnic was to be held August 12 at the Black Forest Pavilion. Volunteers are needed on both the Bylaws committee and the Swapfest committee. The work will not take that much time and can be beneficial to the purposes of the club. (Surely, someone has one night a month to spare..?) Also, Frank, KL7IPV has said no input has been forthcoming as regards the Swapfest. His committee would greatly enjoy hearing some suggestions on how it can be improved.

Lee, KCØNC, presented the treasurer's report. On July 11 the balance was \$1866.20. Income was \$106.05 and expenses were \$225.31 leaving a balance currently of \$1746.94

Al, NCØMW, presented a letter he had received which indicated a new senior citizen's center was scheduled to be constructed at Golf Acres Shopping Center. The letter suggested the possibility of including a meeting room for the club and also a room for a club station. The people involved would like input before construction begins. Leo moved that we pursue this opportunity with haste. The motion was seconded and passed on voice vote.

There being no further business before the group; the meeting adjourned at 9:30 p.m. The next regular meeting will be September 12, 1984.

Respectfully Submitted,
Mark, NØEPF, secretary

The ~~Board~~ ^{board} of The Pikes Peak Radio Amateur Association was called to order July 16, 1984 at 7:40 pm. Present were Bill KQ0H, Mike, K0TER, Les, KC0NC, Frank, KL7IPV, Al, N0OMW, Doc, W0MCT, Jake, N0CYR, and Mark, N0EPF.

Bill moved the the club give up to \$200 for the purchase of picnic food. Frank seconded and the motion passed unanimously. The picnic is scheduled August 12 and the club will provide hamburgers, hot dogs, roasting ears, pop, and other refreshment. Talk in will be on 146.52. The picnic should include only members and their family.

Jake moved and Mark seconded the Les be allowed to continuously purchase mailing labels as they are needed. The motion passed unanimously. Previously, Les had to get approval each time labels were needed which was inconvenient.

Frank, Leo, Les, E.J., and Malcolm will be serving on the Bylaws Committee. A discussion of the Bylaws followed.

The equipment sale was cancelled due to a Bylaw rule.

Bill indicated a need to resign from the Swapfest committee.

Newsletter articles need to be in by the first of the month.

There being no further business, the meeting was adjourned. The next meeting will be August 13 at Mike's.

(Secretary's note: I apologize for missing last month's Beat. Things got a bit out of hand last month.)

Respectfully Submitted
Mark N0EFF, secretary

The regular meeting of the Pikes Peak Radio Amateur Association was called to order July 11, 1984 at 7:30 pm. There were 47 members and guests present. Charlie, KC0TI, presented the program on 2-meter teletype and its possibilities. A belated, sincere thanks to Charlie for his efforts.

In regular business, Les, KC0NC, reported the treasury had an income of \$88.00 and expenses of \$478.60 leaving the club a balance of \$1866.20.

A motion was made to have a draft of club Bylaws available by the October meeting. The motion passed 12 to 11.

Mark, WB9NFE, volunteered to serve as publicity chairman. This is an important position and one which the club feels is much needed. Thank you Mark.

Mike, K0TER, reported that Field Day went fairly well. There was a Good but not large turnout. Thanks especially to the cooks over the weekend. The cw station made 817 contacts. Novices contacted Japan and Argentina!

There being no further business, the meeting adjourned at 9:17 pm. The next meeting will be August 8, 1984 at Giuseppe's.

Respectfully Submitted
Mark, N0EFF, secretary

8 AUGUST 1984

PIKES PEAK RADIO AMATEUR ASSOCIATION

CONSTITUTIONARTICLE IORGANIZATION

Section 1: The name of this organization shall be PIKES PEAK RADIO AMATEUR ASSOCIATION INC., hereinafter referred to as the Club.

Section 2: The Clubs principal office shall be located in Colorado Springs, El Paso County, Colorado

Section 3: The general nature, purposes, objectives, and goals of the Club shall be:

- A. Voluntary and conducted as a non-profit organization
- B. To organize, promote, and maintain a recognized program of training, study, research, operation, and evaluation in the techniques, arts, and sciences of radio and associated means of communication; the construction, operation, and maintenance of radio and associated equipment of whatever kind that may be an adjunct to the activities of the Club and/or its members, and the education and training of its membership and others in such techniques, arts, and sciences.
- C. To make available to any individual, organization, or agency the services of its members, equipment, and knowledge in any activity determined by the Board of Directors to be of value to all parties concerned.
- D. To provide regular opportunities for recreation and social interaction for members and their families and friends.
- E. To provide an organized, comprehensive plan to promote, assist, protect, hold, save, and defend the interests and rights of the Clubs membership both individual and collective, in matters pertaining to Amateur Radio.
- F. To develop a favorable understanding and relationship between its members and the general public and other specialized groups whose objectives are compatible with those of the Club and can be complemented by the activities of the Club.

ARTICLE IIMEMBERSHIP

Section 1: Membership in the Club is open to any person who agrees to support the purposes of the Club as outlined in Article I.

8 AUGUST 1984

ARTICLE III

BOARD OF DIRECTORS

Section 1: The BOARD OF DIRECTORS shall consist of eight (8) members.

ARTICLE IV

OFFICERS

Section 1: The Officers of the Club shall be President, Vice President, Secretary, and Treasurer. Their duties shall be as outlined in the BY-LAWS

ARTICLE V

MEETINGS

Section 1: Meetings of the General Membership shall be held as set forth in the BY-LAWS.

Section 2: The BOARD OF DIRECTORS shall meet at least monthly.

ARTICLE VI

COMMITTIES

Section 1: Committees are determined, created, and terminated as outlined in the BY-LAWS.

ARTICLE VII

AMENDING THE CONSTITUTION

Section 1: This Constitution may be amended by a two thirds (2/3) majority of the Full Members, as defined in the BY-LAWS, present at any General Membership or Special meeting, provided that proper notice, as defined in the BY-LAWS, has been given.

Respectfully submitted by:

Mike Stansberry ~~KRTER~~ V. President
Les Borst ~~KCNC~~ Treasurer
Malcom Benton ~~KE9S~~ Member
Leo E. Uyler Jr. ~~W2QOW~~ Member

THIS PROGRAM SHOULD WORK, WITH LITTLE OR NO MODIFICATION, ON MOST COMPUTERS. IGNORE THE REMARK ABOUT KAYPRO, THAT IS MY MEMO. FRANK

```
10 REM *** THIS IS A CONTEST PROGRAM ***
20 REM *** by W6XI 7-14-82 ***
30 REM *** MODIFIED BY KL7IPV 8-24-84 ***
40 REM *** FOR USE ON ANY PRINTER ***
50 REM *** Duplicates, log, print ***
60 REM *** and list contest program ***
70 REM
80 DIM C$(200): DIM D$(200):J=0
90 TEXT =HOME:PRINT"CONTEST MENU":PRINT
100 PRINT"1) FOR DUP SEARCH..."
110 PRINT"2) FOR LOG CONTACT..."
120 PRINT"3) FOR PRINT LOG..."
130 PRINT"4) FOR LIST LOG..."
140 PRINT"5) FOR RETURN TO SYSTEM..."
150 PRINT:INPUT "ENTER CHOICE AND 'RETURN'..":N
160 IF N<1 OR N>5 THEN PRINT CHR$(7):GOTO 90
170 ON N GOSUB 190,270,400,500,660
180 GOTO 90
190 REM
200 REM *** DUP SEARCH SUBR ***
210 PRINT CHR$(26):PRINT"DUP SEARCH SUBR":PRINT
220 INPUT "ENTER CALL. . .";C1$:PRINT
230 FOR I = 0 TO J
240 IF C1$=C$(I) THEN PRINT"***DUP***":GOSUB 650:RETURN
250 NEXT I
260 PRINT"-- NOT A DUP ----":GOSUB 650:RETURN
270 REM
280 REM *** LOG YOUR CONTACT ***
290 PRINT CHR$(26):PRINT"LOG CONTACT":PRINT
300 INPUT "ENTER CALL. . .";C1$
310 INPUT "ENTER SECTION. . .";S$
320 INPUT "ENTER TIME";T$
330 PRINT:PRINT"CHECK INPUT"
340 PRINT"STATION SECTION TIME"
350 PRINT";C1$;"      ";S$;"      ";T$
360 PRINT:INPUT "INPUT OKAY? (Y/N)..";Y$
370 IF Y$ ="Y" THEN GOTO 390
380 GOTO 270
390 C$(J)=C1$:D$(J)=S$+"      "+T$ :J=J+1:RETURN
400 REM
410 REM *** PRINT LOG SUBR ***
420 REM *** FOR TP-1 TYPE ***
430 PRINT CHR$(26):PRINT CHR$(4);"PR#1"
440 LPRINT "CONTEST LOG":PRINT
450 LPRINT"LOG #           STATION           SECTION/TIME"
460 FOR I = 0 TO J
470 LPRINT I,C$(I),D$(I)
480 NEXT I
490 PRINT CHR$(4);"PR#0":RETURN
500 REM
510 REM *** LIST LOG TO SCREEN ***
520 PRINT CHR$(26):PRINT" LOG LISTING - 20 CONTACTS:"
530 PRINT:INPUT "ENTER NUMBER AT WHICH LIST STARTS..":N
540 IF N<0 OR N>200 THEN PRINT CHR$(7):GOTO 520
550 PRINT CHR$(26):PRINT"LOG LISTING. . .":PRINT
560 PRINT"LOG# STATION SECTION TIME"
570 FOR I = N TO J
580 PRINT I," ";C$(I),D$(I)
```

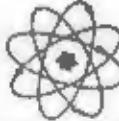
```

590 NEXT I
600 INPUT " HIT (Y/N) FOR MORE.."; Y$
610 IF Y$ = "N" THEN RETURN
620 N=N+20
630 IF N>200 THEN RETURN
640 GOTO 550
650 FOR K = 1 TO 1000: NEXT K : RETURN
660 PRINT"SYSTEM WILL RESET. YOU WILL LOSE ALL DATA!!"
680 PRINT CHR$(7):PRINT CHR$(7):PRINT CHR$(7):PRINT CHR$(7)
685 PRINT:INPUT"DO YOU REALLY WANT TO RESET? (Y/N)";R$
690 IF R$="N" THEN PRINT CHR$(7):GOTO 90
700 SYSTEM
710 END

```

TRY MERGING THIS SHORT PROGRAM WITH THE "QSL" PROGRAM I PUBLISHED A FEW MONTHS AGO.

 MEETING MEETING MEETING MEETING MEETING MEETING MEETING
 The next regularly scheduled meeting of the Pikes Peak Radio Amateur Association
 will be held on Sept. 12th at 7:30 PM at Guiseppe's Depot . The addressis: #10
 S. Sierra St. (almost directly behind the Antlers Hotel.) Discussion will be
 focused on officer nominations rather than a formal program that night.
 If you have someone in mind that you wish to see run for an office, that is the
 to bring it up. This club has many people to fill the positions, let's get them
 activated. If you are interested in an office, let the nominating committee know.



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TO SAY!**

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Jess KOTAA 719 W. 7th St. Florence, Colorado 81226 784-3040
 Hours 8 to 6 Tuesday through Friday — Closed most weekends through the summer
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NEW EQUIPMENT IN STOCK

Kenwood TS 9305 Sale \$1380 w/auto tuner \$1545.
 Kenwood TS 4305 \$695.
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 Kenwood AT250 auto antenna tuner for 4305 \$290.
 Kenwood TS 8305 \$795.
 Kenwood TS 1305V 1 only \$549.
 Icom 730 \$599.
 Icom 745 \$725.
 Yaesu FT 757GX \$735.
 Kenwood 4000A 2m & 440 FM Xcvr List \$699 Sale \$525.
 Same as above w/ voice synthesizer \$560.
 Kenwood TR-7950 45W List \$459 - sale \$365.
 Kenwood 7930 \$314.
 Kenwood TR 2600A New HT \$315.
 Kenwood TR 3500 440 MHz HT-3 only \$235.
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 Santeec 142 2M HT-Best HT on the Market \$274.
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 New Santeec LS 202A 2 mtr HT, FM/USB/LSB-5.2.3 watts \$249.
 Santeec 442 UP 440 HT \$289.
 Complete line of Tokyo High Power amps & tuners at lowest prices.
 Icom 2AT HT Reg. \$269 Now \$214.
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 Icom 3AT \$235.
 Icom 4AT \$235.
 Icom 04AT TBA.
 Icom 27A \$314/Icom 27H \$364.
 Icom 45A 12 watt 440 mobile \$319.
 Vacomm Power Pocket for 1C 2A-chgr/amp \$150.
 Azden PCS 4000 \$274.
 New KDR 2033 mini 25W w/TTM & LCD display-3 only \$249.
 Yaesu FT 200R 2 mtr. synth. HT \$229.
 Yaesu FT 203R w/free vox headset/mlc-1 only \$210.
 Yaesu FT 700R \$235.
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 Kantronics Interface for VIC 20 and others \$125.
 Kantronics Hamsoft for VIC 20 \$46.
 Kantronics Hamtest for VIC/Com 64 \$90
 AMTOR Soft In Stock - \$90.
 Kantronics Interface II - \$245.
 Kantronics Field Day II CW/RTTY reader-demo \$175.
 MFJ wet & dry dummy loads. From a cupfull to a gallon-in stock.
 New MFJ 1224 interface in stock w/free soft program \$90.
 Commodore 1702 color monitor \$245
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 Commodore MPS-801 printer \$215.

Software Galore For The Commodore 64

USED EQUIPMENT

Kenwood TR 7800 \$190.
 Kenwood TS 520 \$395.
 Kenwood TS 520 \$375.
 Mirage 810B 10/80 watt 2 meter amp-FM/SSB \$100.
 KDK 2025 w/TTM only 3/10 watt output-as is \$135.
 Wilson 1402 crystal 2 meter HT w/16 TTP, desk chgr \$75.
 Tampa FMH crystal 2 meter HT, desk chgr \$65.
 Swan PSU 5 power supply \$95.
 Ten Tec 540 Deluxe PS & spkr. \$295.
 Ten Tec VFO 2 frequency monitor \$100.
 Azden PCS 3000 excellent condition w/TTP \$195.
 Complete station-Icom 720A, PS 15, Icom 2 KW amp-2 years old
 good condition \$1495.
 Heath HW 2036 10 watt 2 meter mobile \$100.
 Heath HWA 2036-3 matching PS for 2036 \$25. Both for \$120.
 Heath freq. counter w/scanner to 330 MHz-pair \$85.
 Heath SB 110 6 meter SS8, 145 W & Heath HP 23 PS \$225.
 Heath Shawnee 5 meter AM w/AC & DC adapters \$50.
 Tempo One - matching PS & spkr, digital readout \$275.
 Yaesu FT 101E w/ matching spkr-mini \$350.
 Murch UT 2000 universal transmatch-mini \$110.
 Hal portable CWR-685 telemeter w/5 in green monitor-new \$1095-Sale \$495.
 Hal CT 2200 and keyboard-like new \$450.
 Galaxy 5 w/ AC supply and speaker \$195.
 Galaxy DC 1000 mobile power supply \$25.
 Motorola HT 220 400 MHz ham 6 channel w/desk chgr & LC \$150.
 Collins crystal pack — 117 crystals in plastic pouch \$150.
 Collins R 392 HD AC supply, manuals and some spare tubes, power and
 headphone connectors \$190.
 Drake TR 4 w/PS & digital \$325.
 Tempo 2020 w/ext. VFO & matching spkr. & Heath phone patch
 complete station \$425.
 National NC 300 rcvr. w/calibrator-Mint \$100.
 Palomar Amp for Kenwood 120V 80-10 meters \$150.
 Zenith Transoceanic tube type, clean w/spare tubes \$40.
 Atlas 350 XL w/p.s., like new \$435.
 Wide selection of amateur antennas-base, mobile,
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We now stock Hygain, Hustler, Cushcraft and Larsen antennas
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 Much more used & consignment gear — call for info
 9/84

NOTICE NOTICE NOTICE NOTICE NOTICE

THE 3RD ANNUAL ROCKY MNTN VHF CONFERENCE Coming on October 5, 6, & 7th

Palmer House at I-25 & Filmore St.
 Mini-flea market Friday. Noise figure
 measurements and spectrum analysis will
 be available also. Seminars and discussions
 will be: Weak signal detection, UHF
 microwave antennas, strip line design,
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 GHz for beginners.

\$12 early registrations, \$15 at the door.
 For more info call: Ron, KC7QJ 593-8352
 or Greg, NB0U 597-4531.

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